

Preliminary AGENDA

Draft 05/01/14:

Induced Seismicity by Injection Work Group

May 18, 2014 – Beau Rivage Hotel - Biloxi, MS -- Magnolia Rooms G&H

The Induced Seismicity by Injection Work Group (ISIWG) is a collaborative effort of state oil and natural gas agency representatives and other experts to share science, research and practical experience that will equip the states with the best decision making tools to evaluate the possible connections between seismic events and injection wells, minimize risk, and enhance appropriate readiness when seismic events occur.

The ISIWG is a program of the State Oil & Gas Regulatory Exchange, which is part of a larger state-led effort called States First.

The ISIWG membership consists of employees of state regulatory agencies and/or employees of state geological surveys. Additionally, select individuals have been invited to volunteer as professional advisors upon request by the ISIWG.

The following is the agenda for the Induced Seismicity by Injection Work Group meeting. We are fortunate to have a substantial number of willing participants and want to be respectful and efficient to include input from all participants. We ask that each of you come prepared to briefly present the areas of the agenda that apply to you and your work.

The goal of this first meeting is to share key elements of knowledge to see where we may have areas of consensus as well as our differences of opinion as we work toward our stated purpose to share science, research and practical experience that will equip the states with the best decision making tools to evaluate the possible connections between seismic events and injection wells, minimize risk, and enhance appropriate readiness when seismic events occur.

1:00-1:10 Overview

- Introductions
- Summary of first meeting
 - Review of purpose statement
 - Review of group expansion
 - Opportunities for communication and coordination
 - Possible topics for meetings
 - Potential work products
 - State concerns & needs
 - With addition of PA, CA, IL, IN, WV, & CO
 - Activities and timing

1:10 – 2:00 State Initiatives

- Brief overview of **individual state** initiatives and perspectives
 - Each state will have a representative provide a brief overview of
 - Concerns (limitations, needed technology, research, etc.)
 - Initiatives (reduce risk, public education, etc)
 - Opportunities (could use assistance or coordination with other stakeholders)

2:00-3:10 Group Initiatives

- Brief overview **coordinated group** initiatives and perspectives (OIPA, EDF, DOE, EPA, AXPC, IPAA etc.)
 - Each coordinated initiative representative will provide a brief overview of
 - Concerns (limitations, needed technology, research, etc.)
 - Initiatives (reduce risk, public education, etc)
 - Opportunities (could use assistance or coordination with other stakeholders)

3:10-3:30 Break

3:30-4:00 Research Initiatives

- Brief overview of **individual institution research** initiatives and perspectives (USC, and GE)
 - Each individual research initiative representative will provide a brief overview of
 - Concerns (limitations, needed technology, research, etc.)
 - Initiatives (reduce risk, public education, etc)
 - Opportunities (could use assistance or coordination with other stakeholders)

4:00-4:40 Industry Initiatives

- Brief overview of **individual industry** initiatives and perspectives (Chesapeake, SandRidge, ExxonMobil, Pioneer, Unaffiliated)
 - Each individual industry representative will provide a brief overview of
 - Concerns (limitations, needed technology, research, etc.)
 - Initiatives (reduce risk, public education, etc)
 - Opportunities (could use assistance or coordination with other stakeholders)

4:40-5:00 Summary – Based on what we heard today...

- Review of purpose statement
- Review of group expansion
- Opportunities for communication and coordination
 - Next meeting
- Possible topics for meetings
 - Priorities
- Potential Work Group Products
 - Priorities
- Activities and timing

Rules of Participation

DRAFT 05/01/14

Induced Seismicity by Injection Work Group and Professional Advisory Volunteer Group Membership, Roles, and Rules of Participation

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The ISIWG is a program of the State Oil & Gas Regulatory Exchange, which is part of a larger state-led effort called States First.

Work Group Members (ISIWG):

Core membership of the ISIWG will consist of employees of state regulatory agencies and/or employees of state geological surveys.

State members:

- Arkansas
- California
- Colorado
- Illinois
- Indiana
- Kansas
- Ohio
- Oklahoma
- Pennsylvania
- Texas
- West Virginia

Professional Advisory (PA):

Upon the request of the ISIWG the PA volunteers will be invited to participate in discussions, provide comments to draft documents, and other work projects and attend face-to-face meetings and conference calls. Limited travel assistance may be available through the Ground Water Research & Education Foundation (a 501c3 organization).

Other Governmental:

- United States Department of Energy
- United States Environmental Protection Agency
- United States Geological Survey

Environmental Organizations:

- Environmental Defense Fund

Non-government Organizations:

- Independent Petroleum Association of America
- Oklahoma Independent Petroleum Association
- Society of Petroleum Engineers
- American Natural Gas Alliance

Industry:

- Chesapeake Energy
- ExxonMobil
- Devon Energy Corporation
- SandRidge Energy, Inc.
- Pioneer Natural Resources
- AltaRock Energy

Research/University:

- University of Southern California
- University of Texas
- Southern Methodist University
- Stanford University
- General Electric Global Research

Rules of Participation:

- For the reason of efficient group dynamics, we ask that only one Professional Advisory representative from any one entity attend each face to face work group meeting. The specific representative of an entity may change from one meeting to the next.
- The release of draft and final work products will be at the direction of the ISIWG.
- With the exception of unreleased work products, participants are free to utilize information exchanged during work group meeting but neither the identity nor the affiliation of the information provider may be revealed.
- The ISIWG will strive for consensus.

Participant / Attendee Status

05/01/14 Biloxi, MS May 18th -- **Attending Biloxi** / **NOT attending Biloxi**

ISIWG

- OH **Rick Simmers** – Deputy Chief, Ohio Department of Natural Resources
Bob Worstall – North Region Manager, Ohio Department of Natural Resources
- OK Lori Wrotenbery – Administrator, Oklahoma Corporation Commission
Tim Baker – Manager Pollution Abatement, OK Corp. Commission, O&G Div.
Austin Holland – Oklahoma Geological Survey - University of Oklahoma
- KS **Ryan Hoffman** – Director, Kansas Corporation Commission, Oil & Gas Division
Rex Buchanan – Interim Director, Kansas Geological Survey
- AR **Larry Bengal** - Director, Arkansas Oil & Gas Commission
Scott Ausbrooks – Geohazard Geologist, Arkansas Oil & Gas Commission
- TX Leslie Savage – Chief Geologist, Texas Railroad Commission
Craig Pearson – Seismologist, Texas Railroad Commission
- WV **Jason Harmon** – Deputy Chief, Office of O&G West Virginia Dept. of Env. Prot.
- PA **Joe Lee** – Environmental Program Manager, PA DEP, Office of O&G Management
- CO **Bob Koehler** – Colorado Oil and Gas Conservation Commission
- CA **Mark Nechodom** – California Department of Conservation
John Parrish – California Geological Survey
- IL **Robert Bauer** – Principal Engineering Geologist, IL Geologic Survey
- IN **Herschel L. McDivitt** - Indiana Division of Oil and Gas

ISIWG Professional Advisory

DOE

Grant Bromhal – Rock Fluid Geophysics Team Lead, Predictive Geosciences Div., NETL

EPA

Bill Bates – USEPA HQ

Phil Dellinger – USEPA Region 6

USGS

Justin Rubenstein – Research Geophysicist, USGS

Environmental Groups

Scott Anderson – Environmental Defense Fund

Other Organizations

Independent Petroleum Association of America

Matt Kellogg

Oklahoma Independent Petroleum Association

Brian Woodard

American Petroleum Institute

Stephanie Meadows

American Natural Gas Alliance

Jason Smith

Industry

Chesapeake Energy

Jeff Bull, Manager Regulatory Affairs

ExxonMobil

Kris Nygaard – Senior Stimulation Consultant

Devon Energy Corporation

Rod Gertson - Sr. Geophysical Advisor

SandRidge Energy, Inc.

Linda McDonald - Director of Regulatory

Pioneer Natural Resources

Hal Macartney – Geosciences Advisor

AltaRock (geothermal)

Trenton Cladouhos, AltaRock

Unaffiliated

Ed Steel (formerly with BP)

Universities / Research

Don Paul – University of Southern California

Mark Zoback - Professor, Stanford

Cliff Frohlich – Senior Research Scientist, University of Texas

Brian Stump – Professor, Southern Methodist University

Brian Rovelli – Water Program Manager, GE Global Research

Support

Gerry Baker, Interstate Oil & Gas Compact Commission (IOGCC)

Mike Paque, Ground Water Protection Council (GWPC)

Mike Nickolaus, GWPC

Ben Grunewald, Ground Water Research & Education Foundation